Nematode Parasites of Pelopiinae (Diptera, Tendipedidae) *

Selwyn S. Roback, Curator, Department of Limnology, Academy of Natural Sciences of Philadelphia

Although nematode parasites are common in the Tendipedidae, few have been recorded from the Pelopiinae. Rempel (1940) recorded nematodes (species of *Mermis*) from the genera *Chironomus, Pentapedilum, Tanytarsus* (= *Calopsectra*) *Thalassomyia* and *Cricotopus.* Thienemann (1954) summarized the literature on this subject and cited other genera in the Diamesinae, Orthocladiinae and Tendipedinae from which nematodes parasites have been recorded. He mentioned, however, that he had found none in Tanypodinae larvae and cited only one record, Zschokke (1911), of parasitism of *Tanypus* larvae by *Mermis.* Wülker (1961) records *Paramermis* from *Chironomus, Camptochironomus* and *Tanytarsus* (= *Calopsectra*).

The specimens recorded here were found in a large collection of small Diptera, all preserved in alcohol, sent to the author by Dr. Rupert Wenzel of the Chicago Natural History Museum. They are representative of 3–5 genera of Pelopiinae, depending on one's taxonomic bent. The figures were made from slide mounts of the specimens concerned.

Pentaneura sp., (Group C of Edwards)

This specimen was a typical intersex in the sense of Rempel (1940). The antennae were typically female, Fig. 9, while the abdomen bore fully developed external male genitalia. The abdomen contained a single worm, Fig. 13, and there were no vestiges of the internal gentalic ducts or structures present. The specimen appeared to represent a new species near *P. barberi* (Coq.) but it was not felt advisable to base a new species on an intersex holotype.

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Material examined

1 ♀, 3 Mi S. Cave Creek P. O., Maricopa Co., Arizona, 11-30-VI-52. Coll. Gloyd.

Pentaneura (Ablabesmyia) illinoensis (Mall.)

Tanypus illinoensis Malloch Bull. Ill. Lab. Nat. Hist. 10: 376, 377, 1915

Two parasitized specimens were found in a series of 6 of this species. Of these two, one was a typically aberrant female in the sense of Rempel (1940). All the measurements of the external secondary sexual characters, antennal segments, leg ratios, etc., were identical with those of a normal female from the same series. The only differences that could be found were in the shape of the last antennal segment, Figs. 5, 6, and in the caudally prolonged genital clasper of the parasitized female, Figs. 7, 8. Since only a single parasitized female was available one cannot be sure that these differences are not artifacts of mounting.

The second specimen was unusual in that it was basically male in character. The antennae rather than being of the female type as in a typical intersex were basically of a reduced male type, Fig. 14, or intersexual antennae of Wülker (1961).

The antennal flagellum was apparently only 13-segmented. The first two segments were so closely fused that the line of separation was practically indistinguishable. In addition the usually elongate 13th segment was greatly reduced in length as were its plume hairs. The antennal ratio here was .82 while the normal antennal ratio of *P. illinoensis* is 2.33. The external genitalia and foreleg ratio of the parasitized male were normal for the species. Intersexual antennae have been recorded in the literature in the past. Thienemann (1950) figured intersexual antennae of *Eukiefferiella ruttneri* Gowin.

Wülker (1961) found intersexual antennae, under natural conditions, in males of *Tanytarsus* (= *Calopsectra*) and orthocladiines and, experimentally, in *Chironomus*. He states that male intersexes are entirely feminized as regards external sec-

ondary sexual characters while females are unchanged. This was true in the case of *P. pusillus* (Loew) but in the case of *P. illinoensis* (Mall.) the male leg ratio, as was mentioned above, was not changed.

Rempel (1940) recorded only two males of *C. attenuatus* (Walk.) [= *decorus*] with worms and both were normal in all respects. He suggested that worms can seldom complete their cycle in males. Wülker, however, states that intersexuality induced by parasitic Mermithidae concerns male and female individuals in the same degree.

Material examined

5 ♀ (one infested), Island Lake, Hiawatha Nat. Forest, Alger Co., Mich., 14 Aug 53. Coll. Dybas.
1 ♂ (infested), same data as above.

Procladius (Psilotanypus) pusillus (Loew)

Tanypus pusillus Loew Berl. Ent. Zeitschr. 10: 5, 1866

A series of five males of this species demonstrated the same phenomenon observed under *P. illinoensis* (Mall.). In each the external genitalia were normal and the antennae are typically male but reduced in the direction of the female. Figs. 1 to 4 show four degrees of reduction of the plume hairs of the 13th flagellar segment from almost normal, Fig. 1 to very reduced, Fig. 4. The reduction in length of the 13th segment corresponds to the degree of plume reduction. Table 1 gives the ratios of the antennal segments compared to those of non-parasitized males from Florida. The apex of a normal female antenna is shown for comparison in Fig. 10.

In addition to the antennal reduction the leg ratios are also reduced to about those of the female. Table 2 compares those of the parasitized males with those of a normal male from Florida and females from the same collection. The foreleg ratio of the parasitized male *P. illinoensis* did not show such a reduction.

Each of the males discussed had only one worm in its abdomen, Fig. 11. There was no variation in the measurements

of the basistyle and distyle of the four specimens or in the ratio of the interocular distance to the length of the dorsal eye extension. It is interesting to note that in this collection of 10 specimens overall, only the males were parasitized.

TABLE 1. Comparison of antennal segments of normal and parasitized males of *P. pusillus* (Loew)

	Apical	13	1–12	AR
Normal ♂	9	48	31	1.84
Normal ♂	9	46	32	1.75
P ♂ – A	8	40	31	1.52
P ♂ – B	9	34	29	1.48
P ♂ – C	8	30	31	1.23
P ♂ – D	8	28	29	1.31

TABLE 2. Comparison of leg ratios (I–III) of parasitized males of *P. pusillus* (Loew) with a normal male and female

	I	II	III
Normal ♂	.65	.58	.60
P ♂ – A	.57	—	.60
P ♂ – B	.57	.55	.54
P ♂ – C	.55	.55	.56
P ♂ – D	.58	.52	.54
Normal ♀	.56	.55	.57

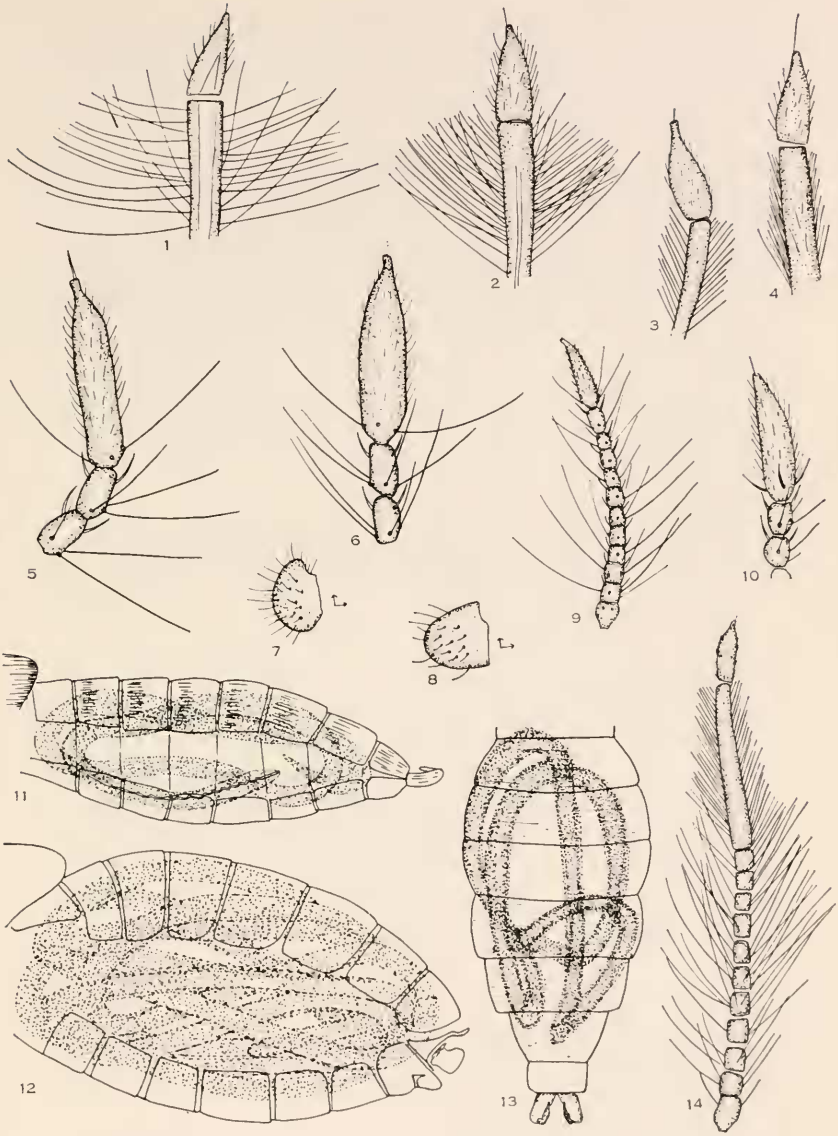
EXPLANATION OF FIGURES

FIGS. 1–4, 10, 11. *Procladius* (*Psilotanypus*) *pusillus* (Loew). 1. Apex of antenna, parasitized male A. 2. Apex of antenna, parasitized male B. 3. Apex of antenna, parasitized male C. 4. Apex of antenna, parasitized male D. 10. Apex of antenna, normal female. 11. Lateral view of male abdomen with nematode.

FIGS. 5–8, 14. *Pentaneura* (*Ablabesmyia*) *illinoensis* (Malloch). 5. Apex of antenna, normal female. 6. Apex of antenna, parasitized female. 7. Genital clasper, normal female. 8. Genital clasper, parasitized female. 14. Antenna, parasitized male.

FIGS. 9, 13. *Pentaneura*, (Group C) sp. 9. Antenna, intersex. 13. Dorsal view, abdomen of intersex with nematode.

FIG. 12. *Coelotanypus scapularis* (Loew). 12. Lateral view of female abdomen with nematodes.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Material examined

5 ♂ (all infested), Brooksville, Hernando Co., Florida, 20-VI-55 at light. Coll. Dybas.
5 ♀ (non infested), same locality.

Procladius (Procladius) culiciformis (Linnaeus)

Tipula culiciformis Linnaeus Syst. Nat. Ed. 12: 978, 1767

One female of this species was found with the abdomen completely filled by a mermithid worm. Except for the resultant distension of the abdomen, the specimen externally appeared to be a normal female. The antennae, legs and genital claspers were all typical for the species. Internally, the spermathecae were absent. This specimen would fit Rempel's (1940) aberrant female category.

Material examined

1 ♀, Island Lake, Hiawatha Nat. Forest, Alger Co., Mich., 14 Aug. 55. Coll. Dybas.

Coelotanypus scapularis (Loew)

Tanypus scapularis Loew, Berl. Ent. Zeitschr. 10: 2, 1866

Two females were found with the abdomen, Fig. 12, completely filled with coiled worm. The abdominal cavity was so densely packed that it was impossible to determine accurately the number of worms involved. There did, however, appear to be more than one present. Except for the loss of the spermathecae, the specimens were normal females of this species.

Material examined

2 ♀, Chechaw State Park, 2 miles NE Albany, Dougherty County, Georgia, 29–30 Aug. 49.

Literature

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A New Chrysura from Plummers Island, Maryland (Hymenoptera, Chrysididae)

Karl V. Krombein, Entomology Research Division, Agricultural Research Service, U. S. Department of Agriculture, Washington 25, D. C.

I am describing this species so that a name will be available for my annotated list of the wasps of Plummers Island, and also for use in my report on the biology of trap-nesting aculeate Hymenoptera. Originally I had thought that the name *hilaris* (Dahlbom) might apply to this species. However, through the courtesy of C. H. Lindroth, Zoological Institute, Lund, Sweden, I have had an opportunity to study Dahlbom's type. I find that it must be retained in the synonymy of *pacifica* (Say).

Superficially, the new species is rather similar in general appearance to *Chrysura smaragdicolor* (Walker). However, *smaragdicolor* differs in genitalia; in the subopaque third sternum; in having the second to fifth flagellar segments of the male strongly rounded out beneath, and the second to fourth with strong metallic reflections above; and in having the male hind femur stouter, its width one-third the length, and with a denser brush of erect white hair on the basal half beneath. It is also distinct from the wide-ranging *pacifica* (Say), which has